



TO BURN OR NOT TO BURN: DECIDING WHETHER TO PUT OUT WILDFIRES IN PUKASKWA NATIONAL PARK

Objectives:

- To understand how humans manage actual environmental events (forest fires);
- To use a decision-making model to manage forest fires;
- To locate relevant information using a variety of primary and secondary sources;
- To work on an activity that supports curriculum expectations.

Grade and Subject:

For a complete list of grades and subjects, please go to the Teacher Resource Centre website at www.pc.gc.ca/education

Project Description:

A wildfire has started in Pukaskwa National Park! Using the resources provided, students will work individually, in pairs or in groups to determine whether the wildfire should be permitted to burn naturally or whether the fire should be extinguished.

To assist you with researching this topic, visit the following websites:

Pukaskwa National Park Fact Sheet
www.pc.gc.ca/education [keyword search "Pukaskwa"]

Pukaskwa National Park of Canada – Fire Management Program
http://www.pc.gc.ca/pn-np/on/pukaskwa/natcul/natcul2e_e.asp

Prescribed Fire in Pukaskwa National Park of Canada
www.pc.gc.ca/pn-np/on/pukaskwa/natcul/natcul3_e.asp

Pukaskwa National Park Fire Fact Sheet
(coming soon)
Revelstoke-Glacier video link

For additional maps, visit:

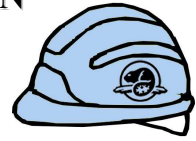
Google Maps
<http://maps.google.com> [keyword search "Pukaskwa"]

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Pukaskwa National Park

The only wilderness national park in Ontario, Pukaskwa National Park protects 1 878 km² of boreal forest. The park borders Lake Superior and is the largest national park in Ontario (refer to Map #1). It is accessed by road via the Trans Canada Highway and is approximately 1 200 km northwest of Toronto and 320 km east of Thunder Bay. Hattie Cove, located in the northwest corner of the park, is the centre for most park activities and services. This includes campsites, day use areas, a visitor centre, and several hiking trails, including the start of the Coastal Hiking Trail.

Fire within Pukaskwa National Park

The mandate of Pukaskwa National Park is to protect and present the natural and cultural resources within the park. Some of the important features within the park include the boreal forest; species at risk (SAR) such as woodland caribou (*Rangifer tarandus*) and the Pitcher's thistle (*Cirsium pitcheri*); and Anishinaabe culture, history, and values.

One of the key natural processes for maintaining the health of the boreal forest ecosystem is fire. However, for several decades the park was under a fire exclusion policy. Much of the vegetation in the park depends on fire, therefore suppressing fires has disrupted the health and function of the park's ecosystem. For example, recent vegetation surveys of the park reveal a forest with few young trees (less than 3% of the total area). Additionally, species dependant on fire such as jack pine have been replaced by white birch, black spruce, and balsam fir (refer to Map #2).

Today park staff are working to reverse these effects by using fire to manage the park's vegetation. This is being done through:

- (1) prescribed fires and
- (2) allowing some wildfires to burn.

Purpose

For this activity you will be assuming the role of a Fire Specialist for Pukaskwa National Park. This means you will need to make some important decisions concerning wildfires within the park. You will read the three scenarios below and use the supporting resources provided (eg. maps, websites, fact sheets, and the wildfire decision key), to explain why you would or would not allow each of these wildfires to burn to their natural end. This activity can be further extended to incorporate role play (Supervisor and Fire Management Specialist), presentation of findings, debate and/or a written memo from the Fire Management Specialist to the Supervisor advising on the recommendation to burn or not to burn.,

Species at risk (SAR)
extinct, extirpated,
endangered,
threatened, special
concern or data
deficient species.

Fire Exclusion Policy:
No fires are allowed,
and wildfires are
extinguished (put out)
immediately.

Prescribed Fires:
Trained specialists
decide when, where
and under what limits
fires will be permitted
to burn. They consider
weather, type of
vegetation, fire
behaviour, terrain and
wildlife in order to burn
safely and meet
ecological goals.

Wildfires:
An unplanned, natural
fire.

Scenario #1 – Wildfire at Hattie Cove

A wildfire just broke out 3 km south of Hattie Cove, the park's administrative centre and popular day-use area. The fire, ignited by a lightning strike, falls within Fire Management Zone 2. Information collected from the nearby weather station indicates that there has been no rainfall for the past five days and air temperatures have averaged 23 °C for the past week. It is summer and the current weather forecast indicates that it will continue to be hot and dry for the next 5-7 days.

The predominant tree species in the area is a mix of white birch (*Betula papyrifera*), jack pine (*Pinus banksiana*), black spruce (*Picea mariana*) and white spruce (*Picea glauca*). Nearby buildings include the Administration Building at Hattie Cove. Surrounding infrastructure includes the park's phone lines, weather station, campsites, access roads to the park, and the beginning of several hiking trails (Southern Headland Trail, Beach Trail, and the Halfway Lake Trail). It is currently peak visitor season. Approximately 3 km north of the park is the Pic River First Nation and the community of Heron Bay.



Your Turn: As the park's Fire Specialist you will need to decide what to do next. Use the following decision-making key to help guide you through the decision-making process. Your decision should be based on the location of the wildfire, the surrounding natural and built environment, the risk to visitors, park staff and residents, and the weather conditions. You will need to answer the following question: **Should this wildfire be extinguished or should it be allowed to burn to its natural end? Justify your answer.**

Scenario #2 – Wildfire 5 km southeast of Soldier Mountain

A wildfire has started 5 km southeast of Soldier Mountain in Fire Management Zone 2. The predominant tree species in the area are white birch (*Betula papyrifera*) and black spruce (*Picea mariana*). The majority of the stands are mature.

The nearby weather station indicates that the average air temperature for the week was 19 °C. The 5-day weather forecast predicts some rainfall and light to moderate winds up to 15 km/hr from the northwest. It is late Spring. With the exception of nearby hydro lines, there are no buildings or services in the area.

Your Turn: As the park's Fire Specialist you will need to decide what to do next. Use the following decision-making key to help guide you through the decision-making process. Your decision should be based on the location of the wildfire, the surrounding natural and built environment, the risk to visitors, park staff and residents, and the weather conditions. You will need to answer the following question: **Should this wildfire be extinguished or should it be allowed to burn to its natural end? Justify your answer.**



Scenario #3 – Wildfire 15 km east of Otter Cove

Hot dry weather conditions following a lightning storm started a wildfire 15 km east of Otter Cove. The wildfire is in Fire Management Zone 3 of the park. Winds are strong and are blowing in a westerly direction. There is an extensive buildup of understory brush which is fueling the fire. The wildfire does not pose a risk to any buildings. The forecasted weather is calling for sunny days with light winds from the southwest for the next 48hrs. The long-term forecast indicates a significant rain event is anticipated, which may drop upwards of 10-15mm of precipitation.

An important note: the Otter Cove area provides an important environment for the forest-dwelling woodland caribou (*Rangifer tarandus*), a species at risk (SAR) assigned a threatened status by the National Committee on the Status of Endangered Wildlife in Canada (COSEWIC). Woodland caribou require large areas of mature coniferous forest for their survival. Habitat fragmentation and an increase in the number of predators, such as wolves, are threatening their survival. (For more information on the Woodland Caribou, see http://www.northernontario.org/Environment/MiscArticles_PukaskwaPark.htm)

Your Turn: As the park's Fire Specialist you will need to decide what to do next. Use the following decision-making key to help guide you through the decision-making process. Your decision should be based on the location of the wildfire, the surrounding natural and built environment, weather conditions, risks to visitors, park staff and residents and any impacts to species at risk (SAR). You will need to answer the following question: **Should this wildfire be extinguished or should it be allowed to burn to its natural end? Justify your answer.**

Threatened Status:

Assigned to species likely to become endangered if negative factors are not reversed.



COSEWIC: the committee which determines the detailed national status of wild Canadian species suspected of being at risk.

Habitat Fragmentation: The alteration or breaking up of habitat into discrete or weakly connected islands as a result of modification to the landscape.



Prescribed Fire Decision-Making Key:

Question	Response	Action
1. Did the wildfire start in Fire Management Zone 2 of the park? (refer to Map #3)	Yes	Proceed to Question #3
	No	Proceed to Question #2
2. Did the wildfire start in Fire Management Zone 3 of the park? (refer to Map #3)	Yes	Proceed to Question #3 to determine if the wildfire is allowed to burn
3. Does continued burning put any human life, important cultural or natural features (species at risk) or park facilities at risk of damage	Yes	Extinguish wildfire immediately – human life, important values and/or property is at risk
	No	Proceed to Question #4
4. Is the forecast predicting hot, dry and/or windy weather over the next few days?	Yes	Assess the situation. If the weather is hot and dry these conditions will fuel the fire. If the wind is blowing in the direction of park infrastructure and/or cultural, natural or human values, you will need to extinguish the front of the wildfire.
	No	Proceed to Question #5
5. Is burning creating excessive smoke and management issues?	Yes	Assess the situation. Excessive smoke leading to reduced visibility could be a problem for visitors to the park and stakeholder values (refer to Map #1). If human health and life is at risk, the wildfire will need to be extinguished.
	No	Wildfire permitted to burn so long as human life, park facilities, property and park values remain unthreatened.

Scenario # _____

Explanation of your decision:

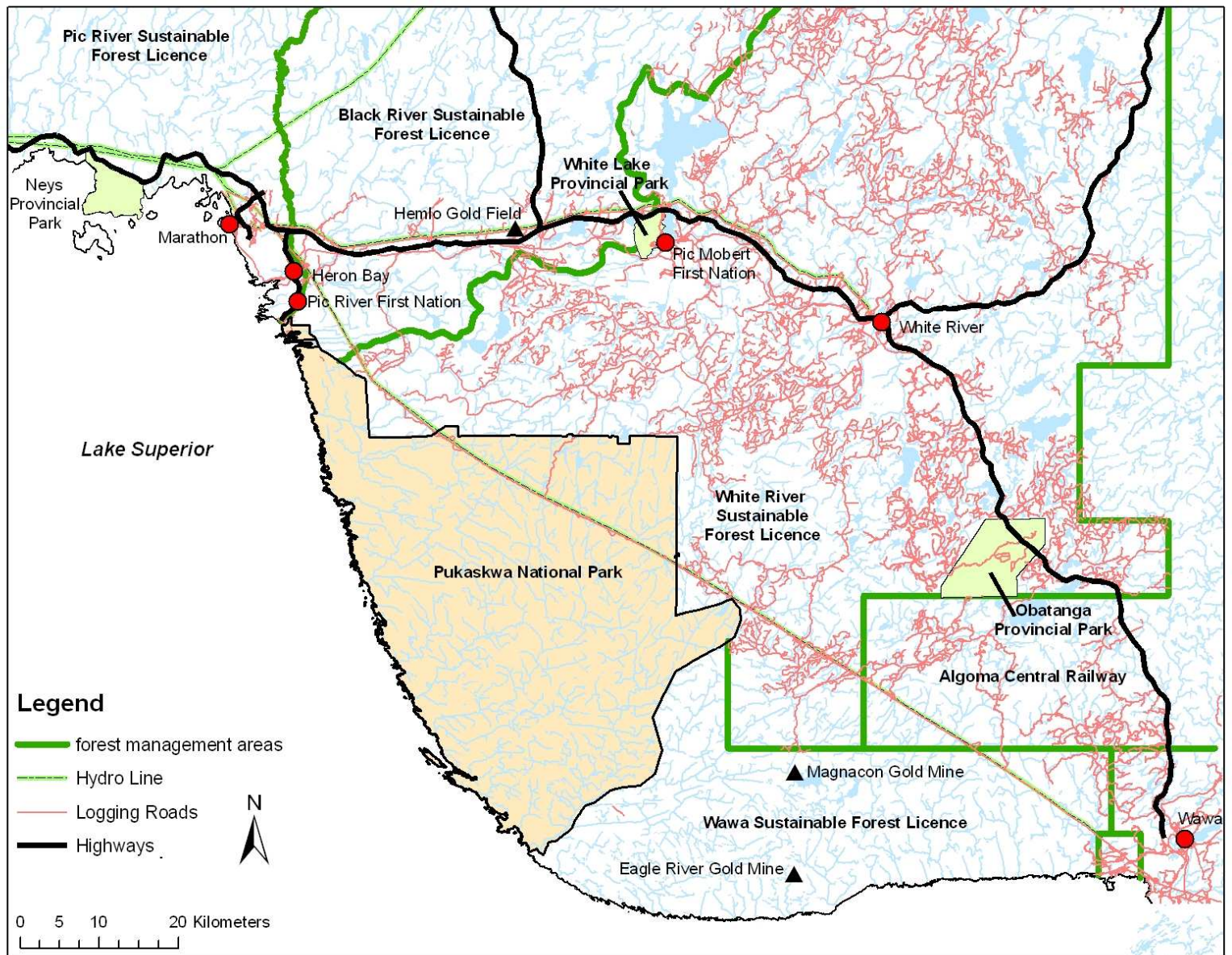
Scenario # _____

Explanation of your decision:

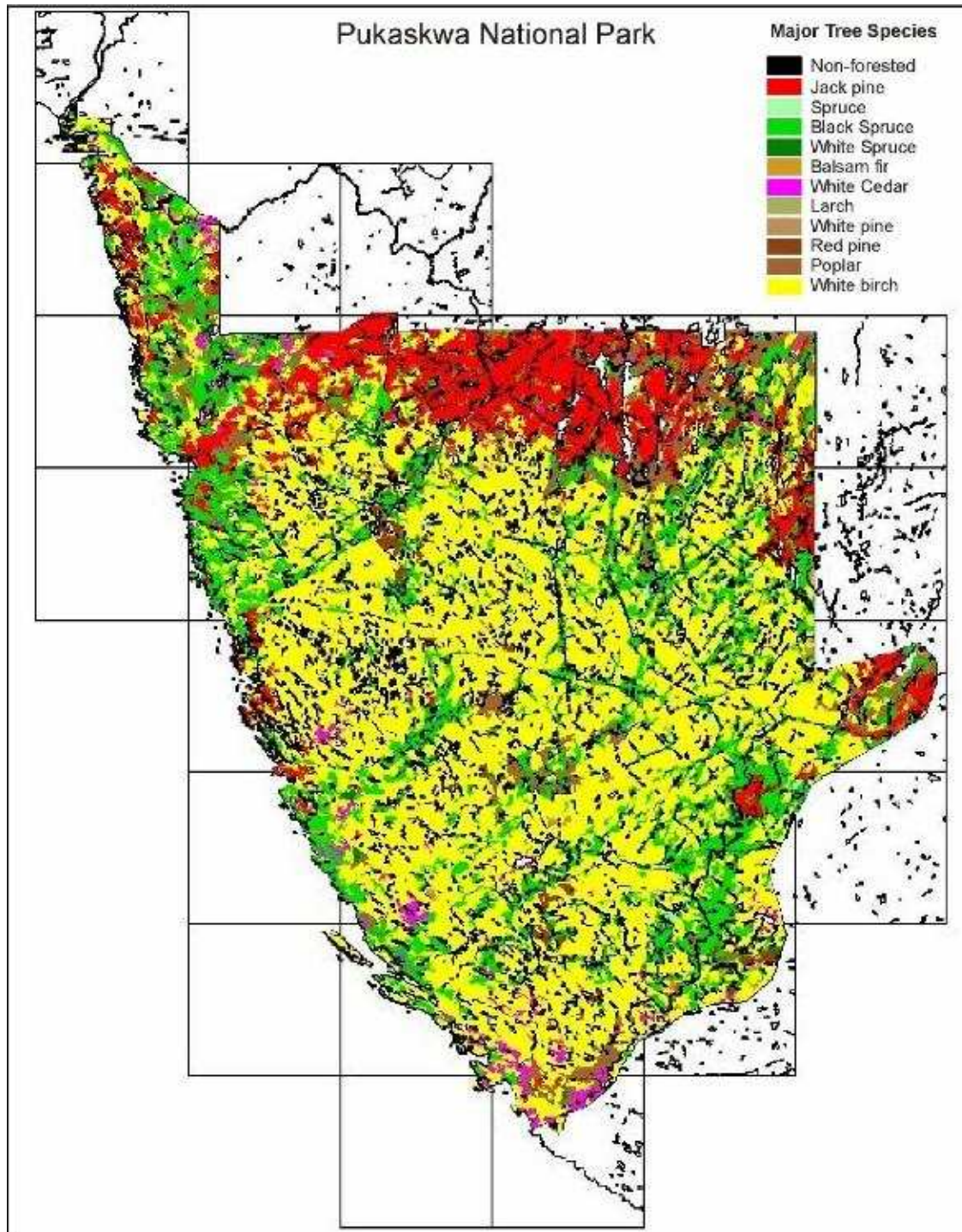
Scenario # _____

Explanation of your decision:

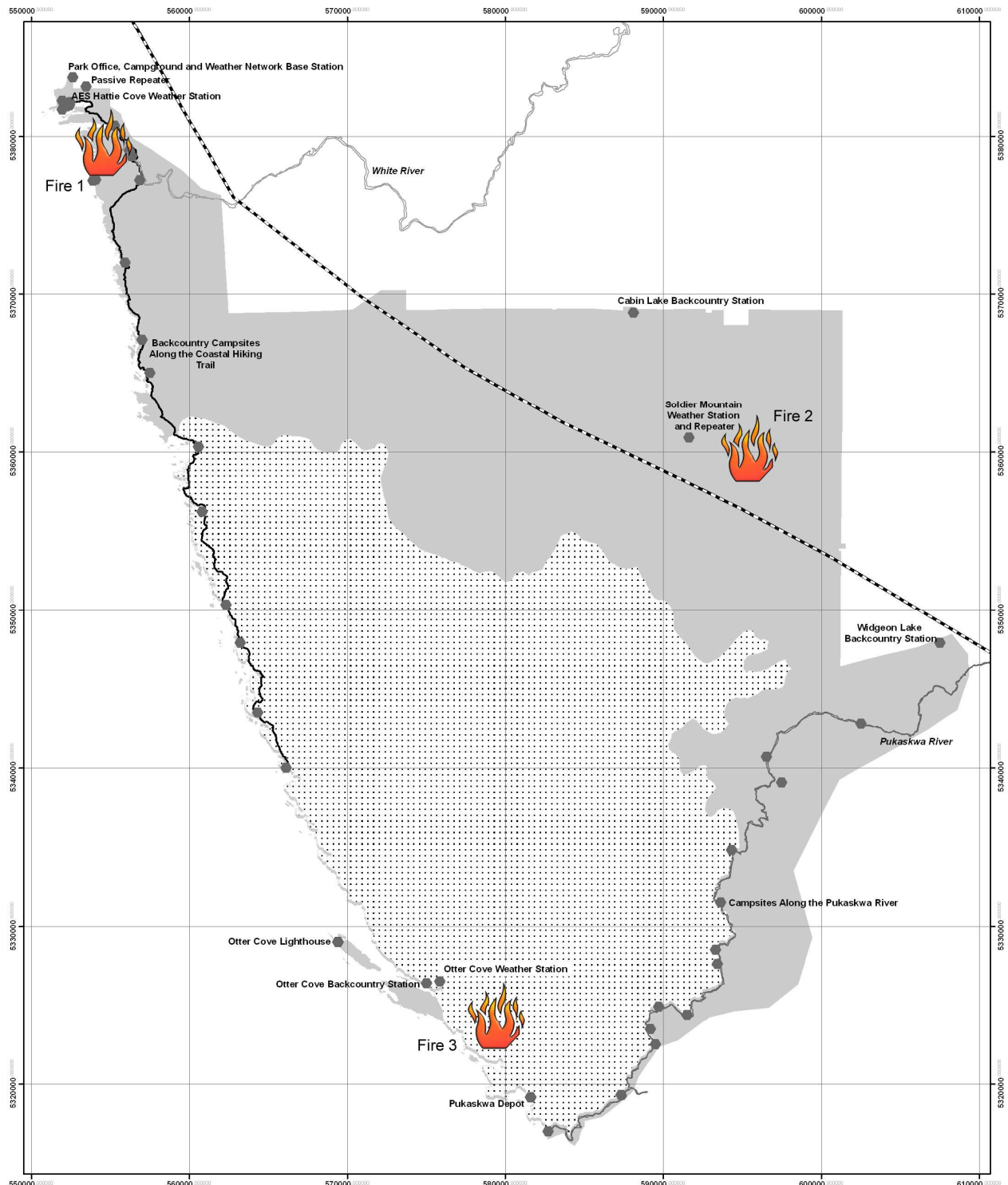
Map 1 Pukaskwa National Park: Stakeholder Values Outside the Park



Map 2 Pukaskwa National Park: Major Tree Species



Map 3 Pukaskwa National Park: Wildfire Locations



Legend

- Fire Management Zone 2 (935.55 km²)
- Fire Management Zone 3 (898.68 km²)
- Coastal Hiking Trail
- Hydro corridor
- Park Values

